

In general, the lowest bed of the series is a dark greenish-blue mass, composed of clay, fine sand, and a little green sand; while above it, the strata are of various shades, yellow, greenish-gray, and brown. Little uniformity prevails in their arrangement at different localities.

A thin band of ferruginous gravel frequently overlies the *Eocene* strata, and forms a distinct line of demarcation between them and the bottom of the *Miocene*.

The stratification of the Eocene at various localities is exhibited in detail, and the characteristic fossils specified, while the curious chemical changes which these have undergone, are also discussed.

Professor Bache presented the printed number of the Society's proceedings for the past three months, No. 6.

Dr. Hays stated that he had received through a friend some of the vaccine virus, recently obtained by Mr. Estlin, of Bristol, from the cow, and had used it with the most satisfactory results. He exhibited a scab, which presented all the characters described by Jenner, as appertaining to the genuine vaccine scab.

*Stated Meeting, April 19.*

Present, thirty-eight members.

Mr. DU PONCEAU, President, in the Chair.

The following donations were received:—

FOR THE LIBRARY.

Mémoires de l'Académie Impériale des Sciences de Saint-Petersbourg. VI<sup>me</sup>. Série. Sciences Mathématiques, Physiques et Naturelles. Vol. IV. Première Partie: Sciences Mathématiques et Physiques. Vol. II. Parts first and second. St. Petersburg, 1838.—*From the Academy.*

Mémoires de l'Académie Impériale des Sciences de Saint-Petersbourg. VI<sup>me</sup>. Série. Sciences Mathématiques, Physiques et

- Naturelles. Vol. IV. Seconde Partie: Sciences Naturelles. Vol. II. St. Petersburg, 1838.—*From the same.*
- Mémoires de l'Académie Impériale des Sciences de Saint-Petersbourg. VIme. Série. Sciences Politiques, Histoire, Philologie. Vol. IV. Part third. St. Petersburg, 1838.—*From the same.*
- Mémoires présentées à l'Académie Impériale des Sciences de Saint-Petersbourg par divers Savans, et lues dans ses Assemblées. Vol. III. Parts third to sixth, and Vol. IV. Parts first and second. St. Petersburg, 1837.—*From the same.*
- Recueil des Actes de la Séance Publique de l'Académie Impériale des Sciences de Saint-Petersbourg tenue le 29 Décembre, 1837. St. Petersburg, 1838.—*From the same.*
- Second Report on the Agriculture of Massachusetts. By Henry Colman, Commissioner for the Agricultural Survey of the State. County of Berkshire, 1838. Boston, 1839.—*From the Author.*
- Copy of the Acts incorporating the Sandusky, Toledo, and Michigan City Rail Road Company, with the Report of the Survey of the Road. By John Hopkins, Esq. Also, the Report of the Survey of the Buffalo and Mississippi Rail Road, through the State of Indiana. By James Seymour, Esq. To which is added, the Circular of the Directors, and the Company's Charter. Toledo, 1839.—*From Mr. Elisha Whittlesey.*
- The Charter and By-Laws of the Ohio Life Insurance and Trust Company. Cincinnati, 1838.—*From the same.*
- An Essay on the Development and Modifications of the External Organs of Plants, &c. By William Darlington, M. D. West Chester, 1839.—*From the Author.*
- O Auxiliador da Industria Nacional, ou Collecção de Memorias e Noticias interessantes aos Faziendeiros, Fabricantes, etc. Periodico Mensal publicado pela Sociedade Auxiliadora da Industria Nacional, estabelecida no Rio de Janeiro. VIth. Year. No. 7. Rio Janeiro, 1838.—*From the Society.*
- Reports and other Documents relating to the State Lunatic Hospital, at Worcester, Mass. Printed by order of the Senate. Boston, 1837.—*From Mr. I. P. Davis.*
- Draft of a revised Common School Law, and of a Law relative to the Preparation of Common School Teachers; with explanatory Remarks, and a set of District Regulations. Prepared by Thomas H. Burrowes, Superintendent. Harrisburg, 1839.—*From Mr. R. Conyngham.*

- Report on Elementary Public Instruction in Europe, made to the thirty-sixth General Assembly of the State of Ohio, December 19, 1837. By C. E. Stowe. Reprinted by order of the House of Representatives of Pennsylvania. Harrisburg, 1838.—*From the same.*
- Berichten über die Verhandlungen der Naturforschenden Gesellschaft in Basel, vom August, 1834, bis Juli, 1838. Nos. 1, 2, and 3. Basel, 1835 to 1838.—*From L. de Wette.*
- Annual Report of the Geologist of Maryland, 1838. Annapolis, 1839.—*From the Author.*
- A Further Report on the Survey of a Rail Road from Chambersburg to Pittsburg. By Charles De Hass, Engineer. Harrisburg, 1838.—*From Mr. R. Conyngham.*
- Geology of Upper Illinois. By Charles U. Shepard, M. D. New Haven, 1838.—*From Mr. E. Whittlesey.*
- First Report of Edward Miller, Engineer in Chief of the Sunbury and Erie Rail Road. Philadelphia, 1839.—*From Mr. F. Fraley.*

The Committee of Publication, reported the publication of Part Second, Vol. VI., of the Society's Transactions.

Professor Bache communicated at the request of the Committee on the Observatory, the following translation of a letter addressed to him by Professor Encke, Director of the Observatory of Berlin.

The nature of the operations of an Observatory must depend more upon the individual taste and qualifications of the Director than those of any other scientific establishment. There is still so much to be done in every department of Astronomy, in any one of which there is sufficient employment, that if the Director shows a particular disposition for certain lines of research, it would be most profitable for science that he should be allowed to follow them, and not be tied down to other observations. It would be best, therefore, that the Director should be allowed to regulate his own establishment.

Large Observatories, like those of Greenwich, Königsberg, and Dorpat, require, in the present state of science, large telescopes, the art of dividing having been carried so far, that small instruments will not answer. The necessity for large telescopes for the meridian instruments, as well as for other uses, renders such an establishment very costly, and requires that it shall be independent of others. It

appears not to be the intention, at present, to erect such an Observatory in the United States, and details in regard to it are therefore unnecessary.

But smaller Observatories may also be useful to science, especially for geographical purposes. Such a one, for example, as would be furnished by a room with a solid foundation, connected with a second having a free horizon. The first to have cuts north and south and east and west, the second to have a turning dome. The following named instruments would be suitable for such an Observatory.

1. A meridian circle with a 42 inch telescope and 20 inch circle, - - -	1,000 Rix Dolls.
2. A telescope of 72 inches focal length, -	900 „
3. An astronomical clock, - - -	400 „
4. A chronometer, - - -	500 „
5. Small transit instrument, - - -	350 „
6. Small telescopes, barometers, thermometers, &c., a theodolite, &c. - - -	750 „
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	3,900 „
	or about \$3,000.

A small Observatory would thus be furnished for about three thousand dollars.

Determinations of the places of stars and planets, and even of the asteroids may be made with the circle as far as the power of the telescope permits. Director Hansen, at Seeberg, and Professor Schwerdt, at Spire, have made excellent observations with a similar instrument. Observations of moon culminating stars for longitude may be also made with it.

Observations of more difficult objects, except perhaps the nearest double stars, of comets, for the exterior of the planets, &c., may be made with the larger telescope.

The small transit instrument, placed east and west, will give the latitude within limits depending upon the accuracy to which the declinations of the stars is determined, and in conjunction with the chronometer, will serve to determine the geographical positions of places which may be selected. For longitude, observations are made of the moon culminating stars, which are observed at the same time with the meridian circle. For latitude the transit is placed east and west.

The Altona Observatory may serve as a model of such a small

Observatory, and the yearly journeys of the Russian Astronomers from Dorpat, as models for the use of the instruments in determining geographical positions. The observations of Professor Schwerdt, of Spire, will be found useful in the application of the meridian circle.

Such a small Observatory will be well adapted to form observers; as the art of handling instruments so as to obtain accurate results is only to be acquired by practice.

Dr. Patterson made the following verbal communication:—

That the use of the wax tablet written on with an iron stylus, as practised by the ancient Romans, had been tried, for the first time, this day, at the Pennsylvania Institution for the Instruction of the Blind, and that the success had been perfectly satisfactory. The blind read, with ease, the words written, traced geometrical figures, &c. It is confidently believed that the Roman tablet will prove of great importance in the instruction of the blind.

Professor H. D. Rogers made a verbal communication, in which he called the attention of the Society to a new compound of platinum, discovered by himself and his friend, Martin H. Boyé; upon the further investigation of which they are at present occupied.

It is a well characterized salt, composed of the deutochloride of platinum, and the binoxide of nitrogen, in which the former may be conceived, in accordance with the views of Professor Hare, to act the part of an acid, while the binoxide of nitrogen is in the relation of a base. It is of a bright gamboge yellow, is distinctly crystalline, though, in consequence of the minuteness of the crystals, their form has not been determined. It is highly deliquescent, absorbing water at ordinary temperatures, with great avidity, from the atmosphere.

It is rapidly decomposed by the mere addition of water, which causes an active effervescence; the binoxide of nitrogen being copiously evolved, and the deutochloride of platinum remaining in solution.

This interesting compound is best procured by evaporating a solution of platinum in *aqua regia* nearly to dryness, and then adding a large excess of fresh nitro-muriatic acid by small quantities at a time. The compound may thus be readily procured by filtering and pressing the powder between folds of bibulous paper. Should the concentration of the liquid be carried too far, it is requisite to add a little

water, just sufficient in quantity to preserve the mass in a semifluid condition, and to prevent the precipitation of any deutochloride of platinum.

Specimens of the salt were exhibited, together with the apparatus employed in the qualitative examination of the compound, the constitution of which was made manifest by proper chemical re-agents.

Dr. Patterson called up the amendment to the by-laws proposed by him on the 15th of March last, and in regard to which due notice had been given. The amendment was adopted as follows:—

If any member shall pay into the hands of the treasurer the sum of fifty dollars, he shall thenceforward be exempted from all annual contributions.

The following candidates were elected Members of the Society:—

HUMPHREY LLOYD, A. M., of Trinity College, Dublin.

J. K. PAULDING, Secretary of the Navy of the United States.

JOHN LUDLOW, D. D. Provost of the University of Pennsylvania.

BENJAMIN W. RICHARDS, of Philadelphia.

GEORGE W. BETHUNE, D. D. of Philadelphia.

GEORGE M. JUSTICE, of Philadelphia.

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*Stated Meeting, May 3.*

Present, twenty-two members.

Mr. DU PONCEAU, President, in the Chair.

The following donations were received:—

FOR THE LIBRARY.

Memoirs of the Royal Astronomical Society. Vol. X. London, 1838.—*From the Society.*

Transactions of the Society for the Encouragement of Arts, Manufactures, and Commerce. During the session of 1837-8. Vol. LII. Part first. London, 1838.—*From the Society.*